

### **REMARKS**

Claims 1-43 were presented for examination, and all claims were rejected. Applicants are hereby amending claims 1-3, 29-31, 38, and 40 merely to distinctly claim their invention. Support for the amendment to claim 1 and 29 can be found, for example, in Applicants' Specification paragraph [0046]. Support for the amendments to claims 2, 3, 30, and 31 can be found, for example, in Applicants' Specification paragraph [0048]. The amendments to claims 38 and 40 are made to correct antecedent basis.

Reconsideration of this application and allowance of all pending claims are respectfully requested.

### **Response to Claim Rejections**

Claims 1-16, 18-19, 22-23, 25, 27, and 29-34 were rejected under 35 USC § 103(a) as allegedly being unpatentable over Young (USP 6,698,900) in view of Colucci et al. (USP 6,880,939). This rejection is traversed. The combination of Young and Colucci does not establish a prima facie case of obviousness because there is no reasonable expectation of success for the combination. MPEP 2143.

Claim 1 recites a display system comprising a display surface having a three-dimensional convex shape; and a projection system, as further claimed, "for projecting an intermediate image at an object field onto a continuous image field on an interior of the display surface, wherein a ratio of a longest image distance to a shortest image distance is at least 1.75, and an image distance at an apex image point is longer than an image distance at a full field image point."

This claim language includes three elements: (1) the projection system must project an intermediate image onto a continuous image field; (2) the ratio of the longest image distance to a shortest image distance must be at least 1.75; and (3) the image distance at an apex image point

must be longer than the image distance at a full field image point. Thus, the image distance changes across the image field. This feature is beneficial for projecting high quality images across the three-dimensional convex display surface.

Regardless of whether Young discloses elements (2) and (3) above, Young fails to teach or suggest element (1): projecting an intermediate image at an object field onto a continuous image field. On a fundamental level, the manner by which the claimed invention and Young create an image on the display surface are different. Young discloses a system having an intense light beam, a scanning deflector module for deflecting the light beam to the coordinates in a pair of Cartesian axes at an exit angle of deflection of the light beam, and a wide angle lens array for increasing the exit angle of deflection by a predetermined factor and projecting the image on the viewing surface. See col. 2, lines 32-44; and col. 5, lines 43-52. Thus, Young deflects a laser to different points on the viewing surface in order to create an image on the viewing surface. Young does not disclose an intermediate image at an object field and does not project (i.e., optically image) the intermediate image to the image field. Young uses a fundamentally different approach to produce the final image. Therefore, regardless of whether Young meets elements (2) and (3) above, Young does not disclose or suggest “a projection system for projecting an intermediate image at an object field onto a continuous image field on an interior of the display surface” as required by the claimed invention.

The Examiner suggests that the teachings of Colucci can remedy the deficiencies of Young. Assuming that the image field in Young meets elements (2) and (3) above, the Examiner reasons that Young’s lack of element (1) can be remedied by replacing Young’s laser scanner system with Colucci’s optical imaging system while still retaining the shape of Young’s original image field, thus satisfying the claimed elements (1)-(3). However, Colucci’s optical imaging

system uses a very different approach to produce an image field of a very different shape and, as a result, there is no reason to expect that Colucci's optical imaging system can be successfully combined with Young's original image field. Therefore, prima facie obviousness has not been established.

In more detail, among other shortcomings, Colucci does not disclose a system where an image distance at an apex image point is longer than an image distance at a full field image point. Rather, the optical imaging systems in Colucci are designed to have the opposite effect: the optical imaging systems project from near the center of a hemisphere, so that the image distance is longest at full field image points and shortest at the apex image point. (*See, e.g.*, Fig. 1 and 2; and col. 3, ln. 30-34.) Colucci does not disclose or suggest that an image distance at an apex image point is longer than an image distance at a full field image point.

The Examiner states that, "At the time of the invention it would have been obvious to replace the laser system of Young with the image source (36 in fig. 3) and relay lens assembly (32 in fig. 3) of Colucci, thereby generating an intermediate image field." (Examiner's Office Action dated July 12, 2006, p. 3) If the teachings were combined as suggested by the Examiner, the resulting projection of the image would be out of focus on the display surface because neither of these references, nor the combination of them, suggests how to change the image distance over the image field such that such a ratio of a longest image distance to a shortest image distance is at least 1.75 and that an image distance at an apex image point is longer than an image distance at full field image points. Young scans a laser beam onto the interior of a spherical viewing surface, but does not suggest "projecting an intermediate image at an object field" onto the spherical viewing surface. Colucci projects an intermediate image, but does not suggest that the intermediate image can be imaged on a display surface "wherein a ratio of a

longest image distance to a shortest image distance is at least 1.75, and an image distance at an apex image point is longer than an image distance at a full field image point.” Accordingly, the references either alone or in combination do not disclose or suggest the claimed features. Therefore, it is respectfully requested that the rejection of claim 1 and its dependent claims 2-16, 18-19, 22-23, 25, 27, and 29-34 be withdrawn.

Claims 17, 20-21, 24, 26, 28, and 35-43, were rejected under 35 USC § 103(a) as allegedly being unpatentable over Young and Colucci in combination with Ligon (US Patent No. 6,409,351), Shimizu (US Patent No. 3,737,214), Bacs, Jr. et al. (US Patent No. 5,546,139), Idaszak et al. (US Patent No. 6,530,667), Jaulmes (US Patent No. 4,464,029), Courchesne (US Patent No. 6,905,218), and/or Ikeda et al. (US 6,560,041). These rejections are traversed.

None of the cited references disclose or suggest projecting an intermediate image at an object field onto a continuous image field wherein a ratio of a longest image distance to a shortest image distance is at least 1.75, and an image distance at an apex image point is longer than an image distance at full field image points. Therefore, Applicants submit that claims 17, 20-21, 24, 26, 28, and 35-43 are patentable over the cited references.

**Closing**

Applicants believe that the application is in condition for allowance of all claims herein, and therefore an early Notice of Allowance is respectfully requested. If the Examiner believes that for any reason direct contact with Applicants' attorney would help advance the prosecution of this case to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,  
Steven W. Utt, Philip C. Rubesin and  
Michael A. Foody

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By: /Robin W. Reasoner/  
Robin W. Reasoner  
Reg. No. 58,257  
Fenwick & West LLP  
801 California Street  
Mountain View, CA 94041  
Phone: (650) 335-7172  
Fax: (650) 938-5200